Fisheries Research Brief

Idaho Department of Fish and Game

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1996 South Fork Salmon River Redd Counts and Estimates of Escapement

The South Fork Salmon River adult weir installation was delayed two to four weeks relative to previous years due to above average flows during the runoff period. Weir installation was complete on July 11.

Eleven hundred ninety-nine adult summer chinook were trapped. This total included 181 females, 280 males, and 738 jacks. The final day of weir operation was September 5.

We used two different methods to estimate the total number of chinook salmon above the weir that could spawn. The first method entailed enumerating the number of fish in each of three groups: 1) fish released directly above the weir; 2) fish trapped and trucked to the Stolle Meadows reach for release; and 3) fish escaping above the trap site before the weir was installed.

Seventy-three were trucked approximately 10 river miles upstream and released into the South Fork Salmon River at three sites in the Stolle Meadows section on 8/9 and 8/13. Of these, all were opercle tagged, including 32 females, 29 males, and 12 jacks. A total of 102 fish were released directly above the weir. These fish were also tagged, and included 19 females, 60 males, and 23 jacks.

Seventy-seven carcasses were recovered during spawner surveys. Fifty-two carcasses were from tagged fish (19 females, 28 males, and 5 jacks) and 21 carcasses were determined to have never been tagged (6 females, 6 males, and 9 jacks). The tagging disposition could not be determined for four of the carcasses. Using the recovery rates of tagged carcasses (37.3% for females, 31.5% for males, and 14.3% for jacks), we estimated that 98 fish (16 females, 19 males, and 63 jacks) escaped to the spawning area before the weir was closed.

We estimate, by combining the three fish groups, that 273 fish were above the weir during the spawning season. This total includes 67 females, 108 males, and 98 jacks. After prespawn mortality of 10% was accounted for, we estimate 60 females would have been available to construct redds.

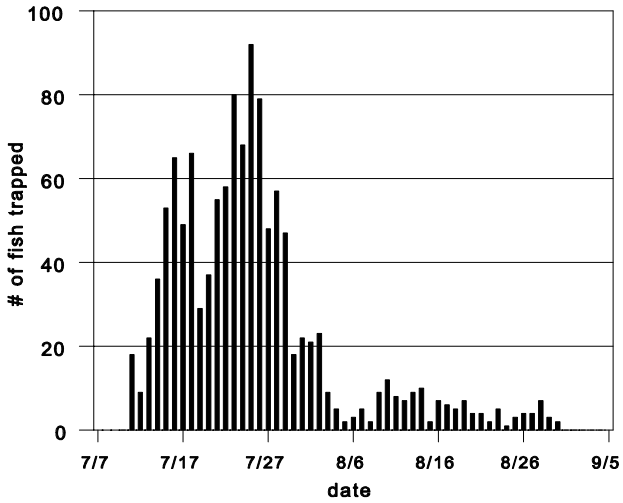

Figure 1. Arrival timing graph for summer chinook returns to the South Fork Salmon River, Idaho, 1996.

Our second method of estimating the number of fish available to spawn above the trap site was based on run timing curves, and assuming an average arrival-time distribution (23% of the run passes the weir site before July 15). Using this method, we estimated that 179 adults, including 27 females, 41 males, and 111 jacks escaped above the weir prior to its closure. Assuming an equal rate of prespawn mortality, and including the 51 outplanted females (trucked plus direct release), 70 females would have been present to construct redds above the weir.

Comprehensive redd counts were conducted between 8/12 and 9/5 by four different persons. We counted 78 complete redds within the study area during the traditional period of spawning activity.

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